

IAP20 Rec'd FEB 10 11 JAN 2006

IN THE UNITED STATES DESIGNATED/ELECTED OFFICE

International Application No. : PCT/EP2004/006777  
International Filing Date : June 23, 2004  
Priority Date(s) Claimed : July 11, 2003  
Applicant(s) (DO/EO/US) : Atsutaka MANABE et al.

Title: LIQUID-CRYSTALLINE MEDIUM

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.56, 1.97 and 1.98

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This information disclosure statement is made in accordance with 37 C.F.R. §§ 1.56, 1.97 and 1.98 as follows:

Timing and Fees

- Under 37 C.F.R. § 1.97(b), no fee or statement is required for filing this information disclosure statement is filed:
- within three months of the filing date of a national application other than a CPA under § 1.53(d);
- within three months of the actual filing date of the national phase of a PCT application; OR
- before the mailing of a first substantive office action (including after filing of an RCE).
- Under 37 C.F.R. § 1.97(c), this information disclosure statement is filed after the periods specified in 37 C.F.R. § 1.97(b), but before the mailing date of:
- a final rejection under 37 C.F.R. 1.113;
- termination of prosecution, e.g. Ex Parte Quayle, M.P.E.P. § 609(B)(2); OR
- a notice of allowance under 37 C.F.R. § 1.311; and

is accompanied by:

- the statement as specified in 37 C.F.R. § 1.97(e) set out below; OR
  - a check covering the fee of \$180.00 under 37 C.F.R. § 1.17(p).
- Under 37 C.F.R. § 1.97(d), this information disclosure statement is filed after the mailing date of the following actions which have not been withdrawn:
- a final action under 37 C.F.R. § 1.113;
  - termination of prosecution, e.g. Ex Parte Quayle, M.P.E.P. § 609(B)(2);
  - OR a notice of allowance under 37 C.F.R. § 1.311;

AND is filed on or before payment of the issue fee; AND is accompanied by:

the statement as specified in 37 C.F.R. § 1.97(e) as set forth below, and the fee of \$180.00 under 37 C.F.R. § 1.17(p).

#### Statements Under 37 C.F.R. 1.97(e)

- Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application having a mailing date not more than three months prior to the filing date of this information disclosure statement; or
- No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and to the knowledge of the undersigned attorney after making reasonable inquiry, no item of information contained in this information disclosure statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing date of the information disclosure statement.

#### Cited Materials

- Copies of materials listed but not attached were cited in benefit (35 U.S.C. § 120) ancestor application Serial No. \_\_\_\_\_, on Form 892 by the Examiner and/or Form 1449 by the applicant; see 37 C.F.R. § 1.98(d).
- Copies of materials listed but not attached were cited in an international search report dated November 12, 2004.
- Not required by 37 CFR § 1.98.
- Copies of the materials listed are attached (except for the foregoing).

### Non-English Language References

An English-language search report or equivalent paper from a foreign patent office is provided indicating the relevance of the cited reference(s).

A foreign-language search report from a foreign patent office is provided, and pertinent parts are translated substantively below:

X = document of particular relevance when it is taken alone

Y = document of particular relevance when it is combined with another such document

A = document defining the general state of the art

O = non-written disclosure

P = intercalated document

T = document cited to understand the theory or principle underlying the invention

E = patent document which has the benefit of a date earlier than the filing date and which was published only on or after this filing date

D = cited in the application

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Translation of other relevant information on foreign search report

In the search report, "Seite" means page, "Seiten" means pages, "Verbindungen der Formel" means Figure of formula, "Beispiele" means examples, and "das ganze Dokument" means the entire document, "Spalte" means column, "Zeile" means line, "Abbildungen" means claims, "Anspruch" means example, "Zusammenfassung" means summary, and "Tabelle" means table, and "Tabellen" means tables "in der Anmeldung erwaehnt" means cited in the application, "Schema" means scheme, "und" means and, "Absatz" means break, "Abildung" means figure.

### Other Information

#### Payment of Fees Due (If Any):

A check for \$\_\_\_\_\_ covering the fee identified above is attached.

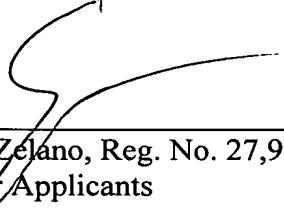
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**10/564276**

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The Commissioner is hereby authorized to charge or credit any overpayment to Deposit Account #13-3402, two copies of this paper are attached for this purpose.

Respectfully submitted,

  
\_\_\_\_\_  
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Attorney Docket No.: MERCK-3115

Date: January 11, 2006

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Substitute for form 1449A/PTO		Complete if Known	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>		Application Number	Unassigned 1064276
(use as many sheets as necessary)		Filing Date	January 11, 2006
		First Named Inventor	Atsutaka MANABE et al.
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
Sheet	1	of	2
		Attorney Docket Number	MERCK-3115

## **U.S. PATENT DOCUMENTS**

Examiner Initials *	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code <sup>2</sup> (if known)		
	1	4594465			June 10, 1986
	2	5384071			January 24, 1995
	3	5358663			October 25, 1994
	4	6083423			July 4, 2000
	5	5800737			September 1, 1998

## **FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>8</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	6	EP	0132377		Merck Patent GmbH	January 30, 1985		Equiv to cite 1
	7	WO	8707890		Secr Defence Brit	December 30, 1987		Equiv to cite 2
	8	GB	2198743		Secr Defence	June 22, 1988		
	9	GB	2200912		Secr Defence	August 17, 1988		
	10	WO	8903821		Secr Defence Brit	May 5, 1989		Equiv to cite 3
	11	WO	9115555		Merck Patent GmbH	October 17, 1991		Equiv to cite 4
	12	WO	9533802		Central Research Lab Ltd.	December 14, 1995		Equiv to cite 5
	13	JP	04279695		Dainippon Ink & Chem Inc.	October 5, 1992		
	14	GB	2367058		Merck Patent GmbH	March 27, 2002		

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Substitute for form 1449A/PTO				Complete if Known	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number	Unassigned <b>1564270</b>
(use as many sheets as necessary)				Filing Date	January 11, 2006
Sheet	2	of	2	First Named Inventor	Atsutaka MANABE et al.
				Group Art Unit	Unassigned
				Examiner Name	Unassigned
				Attorney Docket Number	MERCK-3115

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T <sup>2</sup>
	15	Patent Abstracts of Japan Bd. 017, Nr. 079 (C-1027), 17. February 6 1993 (1993-02-017)		
	16	CHAN, L.K. M. et al: "synthesis and evaluation of some 4,4"-disubstituted lateral fluoro-1,1':4',1"-terphenyls" MOLECULAR CRYSTALS AND LIQUID CRYSTALS; ISSN: 0026-8941, Bd. 123, 1985, 185-204, XP009038157.		
	17	CHAN, L.K. M. et al: "Reentrant nematic and injected smectic behaviour in binary mixtures including those of terminally non-polar compounds" MOL. CRYST. LiQ. CRYST. Bd. 150, 1987, 335-359, XP009038155.		
	18	CHAN, L.K. M. et al: "Synthesis and liquid crystal behaviour of further 4,4"-disubstituted 2'-fluoro-1,1':4',1"-terphenyls" MOLECULAR CRYSTALS AND LIQUID CRYSTALS; ISSN: 0026-8941, Bd. 158, 1988, XP000005279.		
	19	GRAY, G. W. et al: "The synthesis of several lateral difluoro-substituted and 4,4"-dialkyl- and 4,4"-alkoxyalkyl-terphenyls and a rationalization of the effect of such substitution on mesophase type and transition temperatures" MOLECULAR CRYSTALS AND LIQUID CRYSTALS; ISSN: 0026-87941, Bd. 204, 1991, 43-64, XP000236763		
	20	HIRD M ET AL: "The synthesis transition temperatures of some lateral cyano-substituted 1,1':1:4, 1"-terphenyls" MOLECULAR CRYSTALS AND LIQUID CRYSTALS, Bd. 206, 1991, 205-221, XP000236824.		
	21	XU, J. et al: "Liquid crystal system as molecular machinery: investigation of dynamic impedance matching between molecular core and terminal groups using rotor-bearing model" Japanese journal of applied physics, Bd. 39, Nr. 4A, Part 1, 2000, 1801-1807, XP001014936.		
	22	Reiffenrath, V. et al: "Synthesis and properties of liquid crystalline materials with high optical anisotropy" SPIE LIQUID CRYSTAL DISPLAY AND APPLICATIONS, Bd. 1257, 1990, 84-94, XP009038208.		

Examiner Signature	Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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